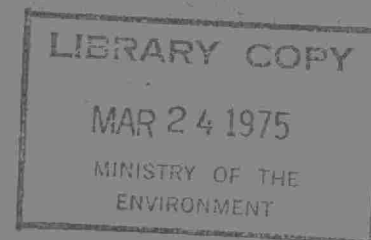


OPERATING SUMMARY

NEWMARKET

WATER POLLUTION CONTROL PLANT

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REGIONAL OPERATIONS
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REGIONAL OPERATIONS DIVISION

DIRECTOR, CENTRAL REGION
P. Cockburn

MANAGER, UTILITY OPERATIONS
A. Thomas

NEWMARKET
WATER POLLUTION CONTROL PLANT

operated for

THE TOWN OF NEWMARKET

by the

MINISTRY OF THE ENVIRONMENT

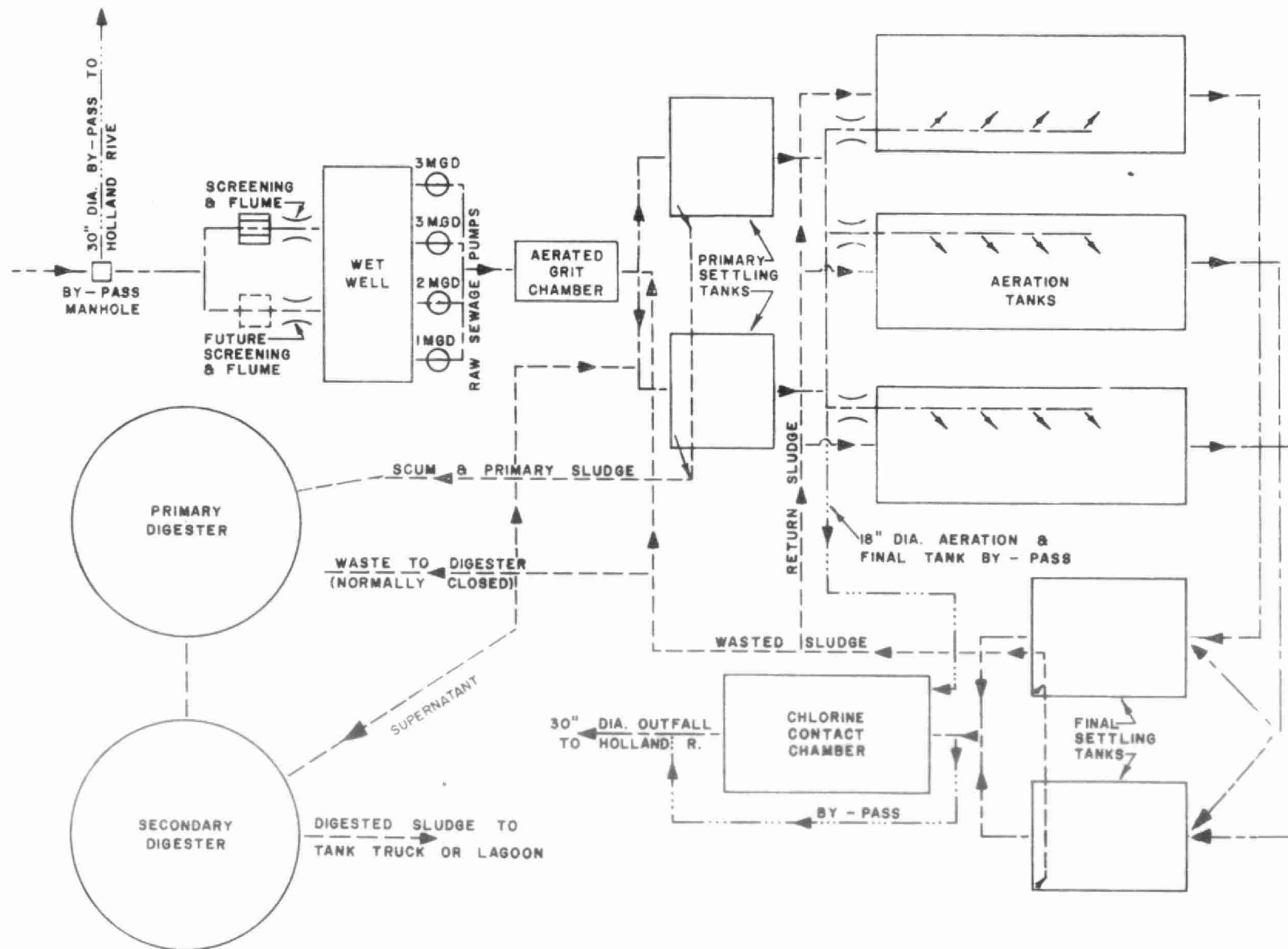
1973 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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TOWN OF NEWMARKET WPCP



DESIGN DATA

PROJECT Town of Newmarket WPCP

PROJECT NO. 2-0087-61

TREATMENT Activated Sludge

DESIGN FLOW 2.0 mgd

DESIGN POPULATION

Newmarket 9,200

East Gwillimbury 10,000

BOD - Raw Sewage 220 mg/l
- Removal 90%

SS - Raw Sewage 212 mg/l
- Removal 90%

PRIMARY TREATMENT

Screening

in East Channel; 1" spacing

Raw Sewage Pumps

Type: Smart Turner

Size: Two 1875 gpm @ 30' tdh

One 1560 gpm @ 30' tdh

One 1000 gpm @ 30' tdh

Grit Removal

Type: Aerated, grit removed by
air lift

Size: Two 14.3' x 6' x 8.1' swd
(9,700 gal)

Retention: 7 min

Air Supply: One Sutorbilt

130 scfm @ 8 psi

Primary Sedimentation

Type: Eimco

Size: Two 30' x 30' x 11.7' swd
(131,000 gal)

Retention: 1.57 hr

Loading: Surface, 1110 gal/ft²/day
Weir, 10,800 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical; single-pass

Size: Three 90' x 30' x 10.7'
(107,500 cu ft or 0.67 mil gal)

Aerators

Twelve Simcar

Secondary Sedimentation

Type: Eimco

Size: Two 35' x 35' x 13' swd
(197,000 gal)

Retention: 2.4 hr

Loading: Surface, 840 gal/ft²/day
Weir, 7,870 gal/ft/day

CHLORINATION

Wallace & Tiernan

Chlorine Contact Chamber

Size: One 61.4' x 9' x 10.1'
(34,800 gal)

Retention: 25 min

OUTFALL

to Holland River

SLUDGE HANDLING

Digestion System - Two Stage

Primary --

Type: Gas mixed concrete

C. P. Lammert gas comp.

Size: One 40 dia x 21.25 swd
(26,800 cu ft or 0.167 mil gal)

Loading: 2.9 lb/cu ft/mo

Secondary --

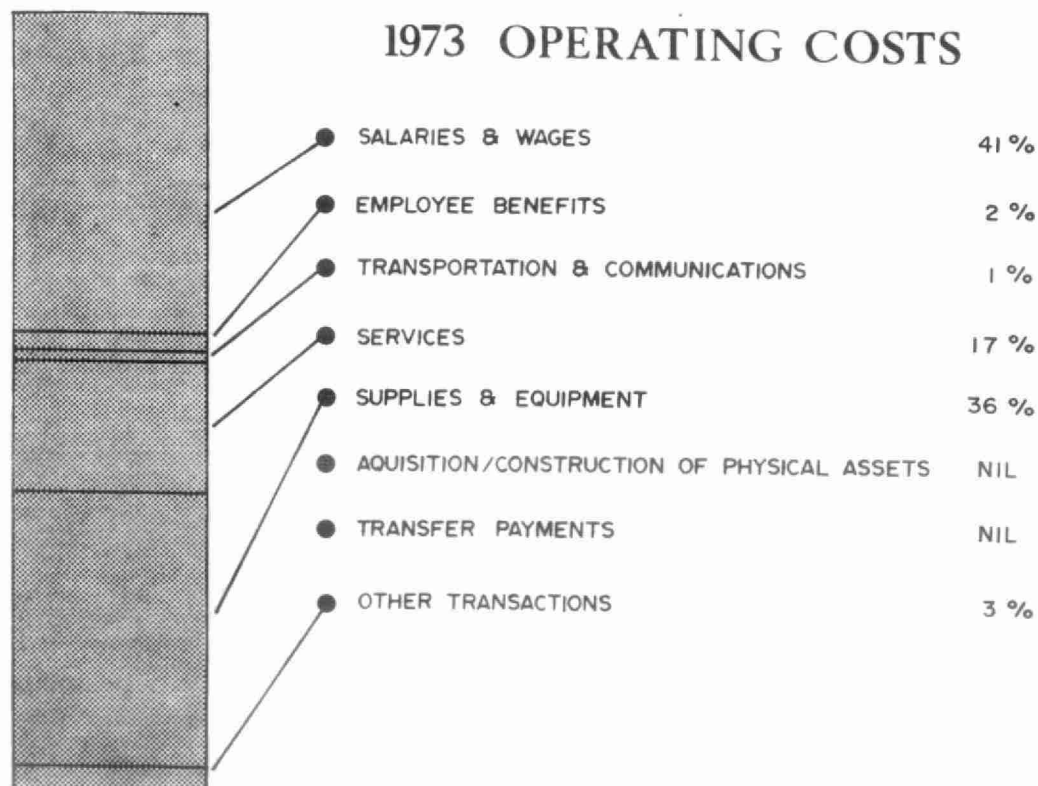
Size: One 40; dia x 23' swd

(28,950 cu ft or 0.18 mil gal)

Total Loading: 1.4 lb/cu ft/mo

ANNUAL COSTS

1973 OPERATING COSTS



YEARLY OPERATING COSTS

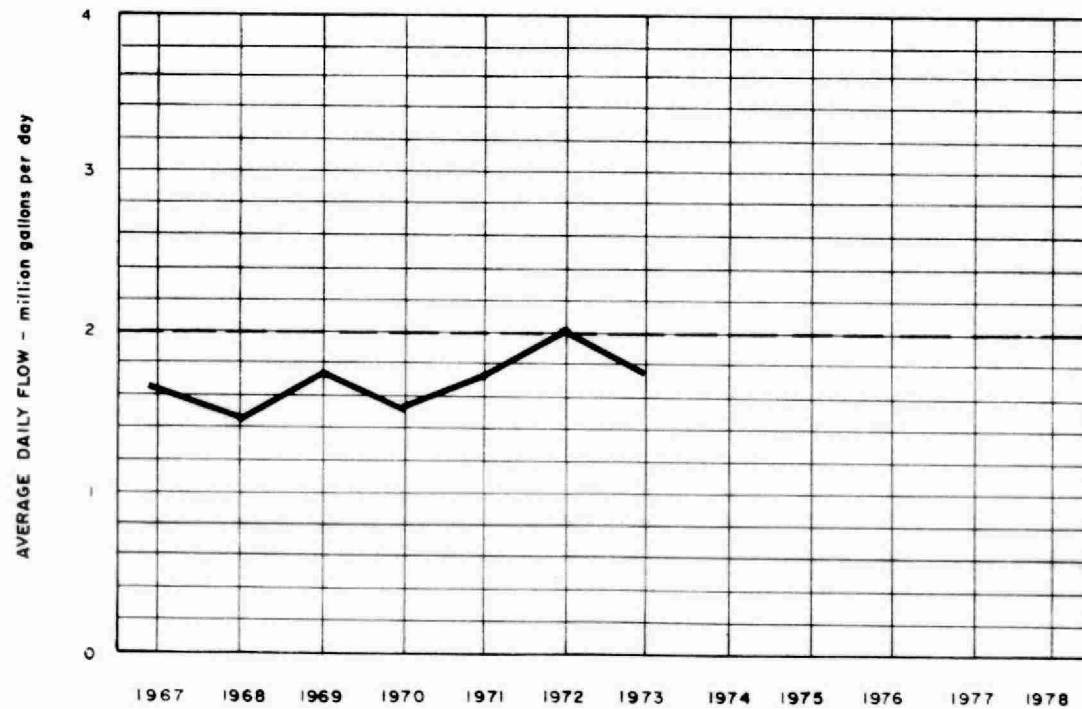
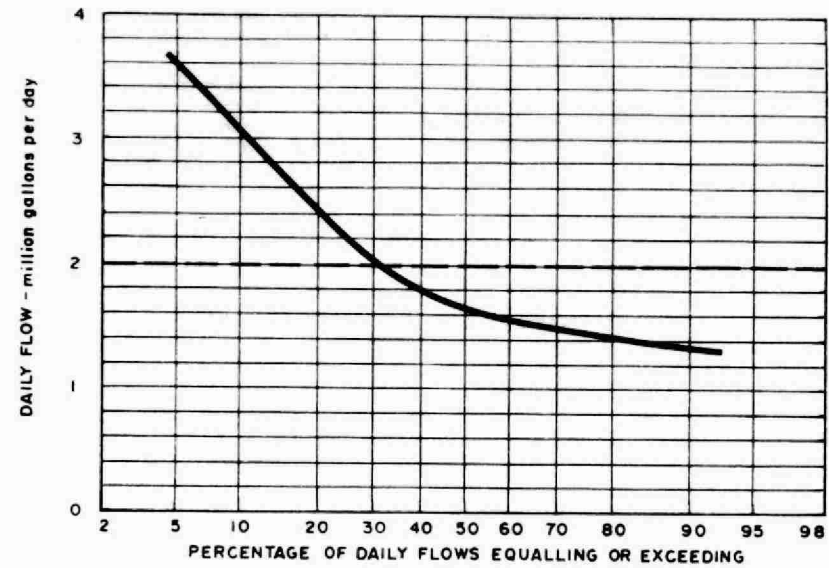
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	£/lb BOD
1968	531	\$ 46,890	88	5
1969	612	56,910	93	5
1970	578	61,388	106	7
1971	633	77,198	122	7
1972	732*	81,777	112	6
1973	647	116,640	180	10

* Estimate

OPERATING EXPENDITURES

SALARIES AND WAGES	<u>\$47,327</u>
EMPLOYEE BENEFITS	<u>2,571</u>
TRANSPORTATION & COMMUNICATIONS	<u>844</u>
SERVICES	<u>20,236</u>
SUPPLIES AND EQUIPMENT	<u>41,998</u>
ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	<u>0</u>
TRANSFER PAYMENTS	<u>0</u>
OTHER TRANSACTIONS	<u>3,664</u>
TOTAL	<u>\$116,640</u>

PROCESS DATA FLOWS



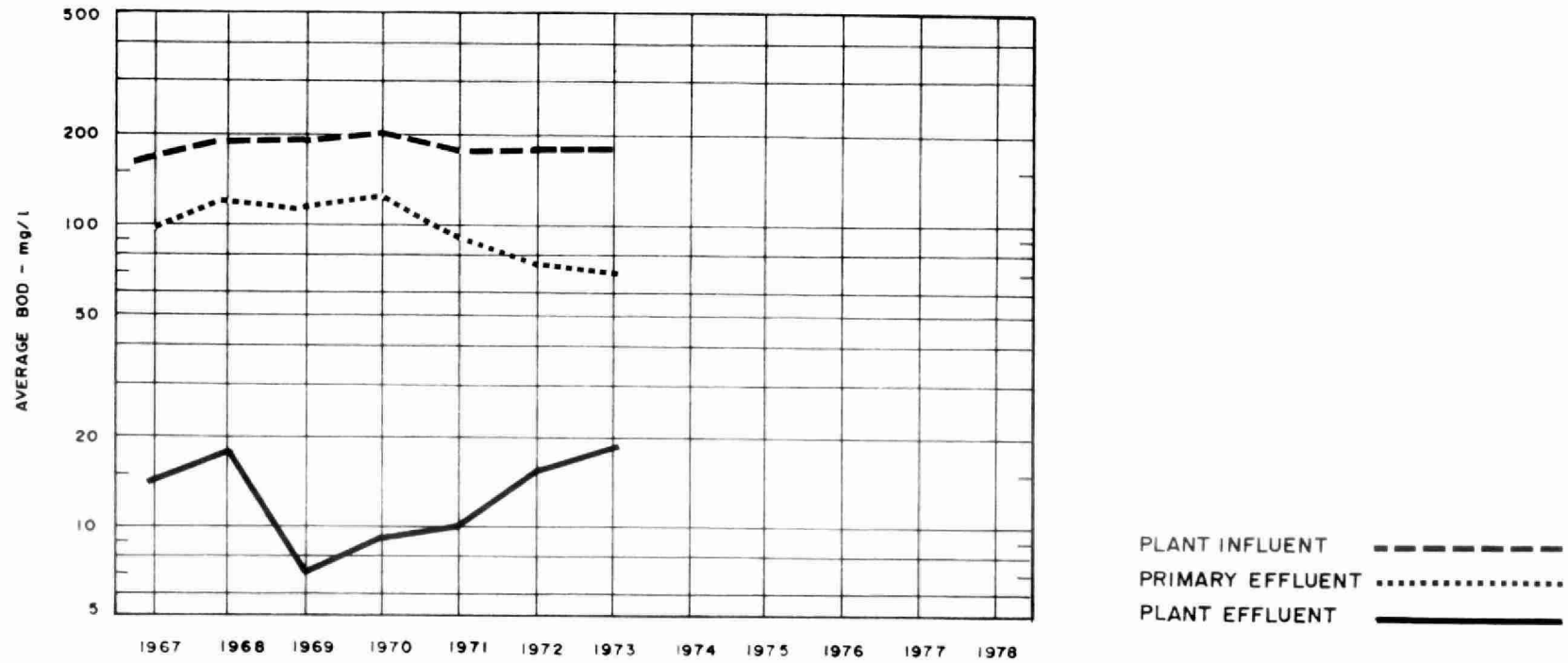
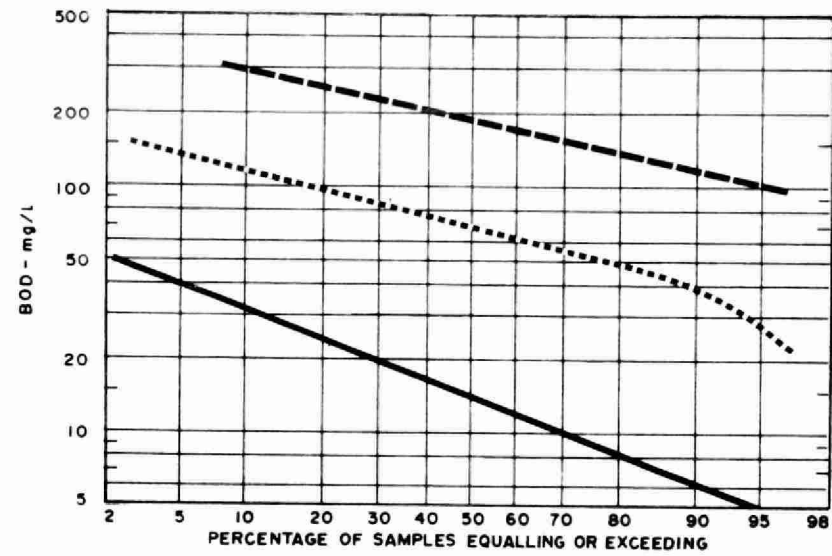
DESIGN CAPACITY — — — — —

PLANT PERFORMANCE

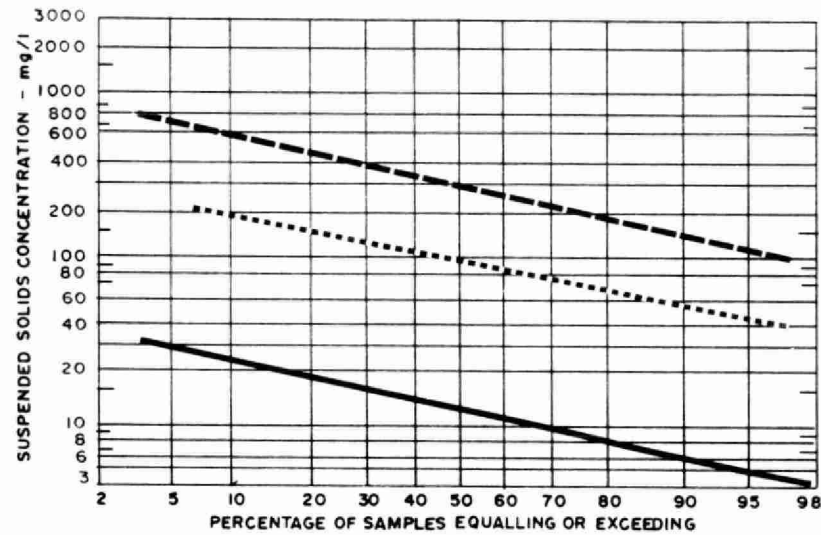
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	65.5	2.11	5.00	210	18	91	120	290	13	96	180		
FEB	45.0	1.61	5.00	200	35	82	72	210	14	93	90		
MAR	56.8	1.83	3.08	170	32	82	81	370	11	97	210	9.2	1.7
APR	83.7	2.79	8.29	140	14	90	110	280	8	97	240	7.0	2.0
MAY	51.0*	1.65	2.84	190	16	92	90	360	11	97	180		
JUNE	46.0*	1.55	1.89	360	9	98	160	280	11	96	130	10.0	1.0
JULY	38.0*	1.24	1.24	180	12	93	64	290	12	96	110	7.6	1.5
AUG	47.7	1.54	2.41	210	8	96	96	430	12	97	200	6.8	0.8
SEPT	44.6	1.49	1.85	170	6	96	71	240	7	97	110		
OCT	52.4	1.69	6.17	180	12	93	88	240	17	93	110	10.0	2.0
NOV	60.2	2.01	6.58					620	13	93	360		
DEC	55.7	1.80	2.17					200	15	93	100		
TOTAL	646.6	-	-	-	-	-	-	-	-	-	2020	-	-
AVG.		1.77	MAXIMUM 8.29	180	19	90	96	330	12	96	168	8.2	1.8
No. of Samples	-	-	-	146	141	-	-	168	30	-	-	64	64

* Estimate

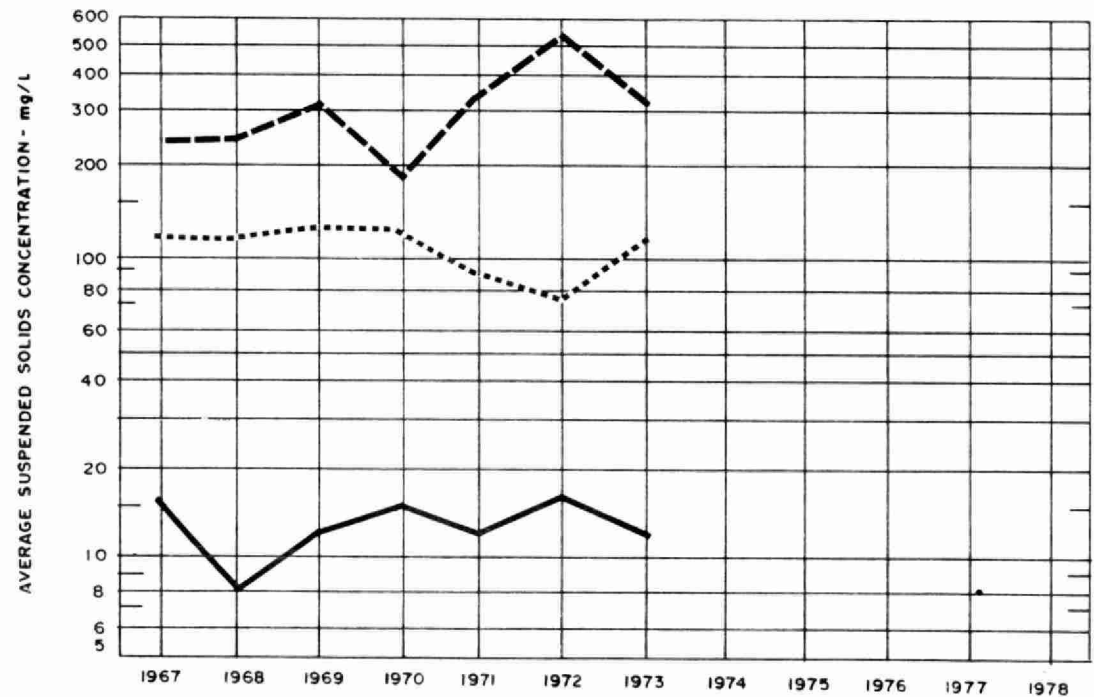
BIOCHEMICAL OXYGEN DEMAND



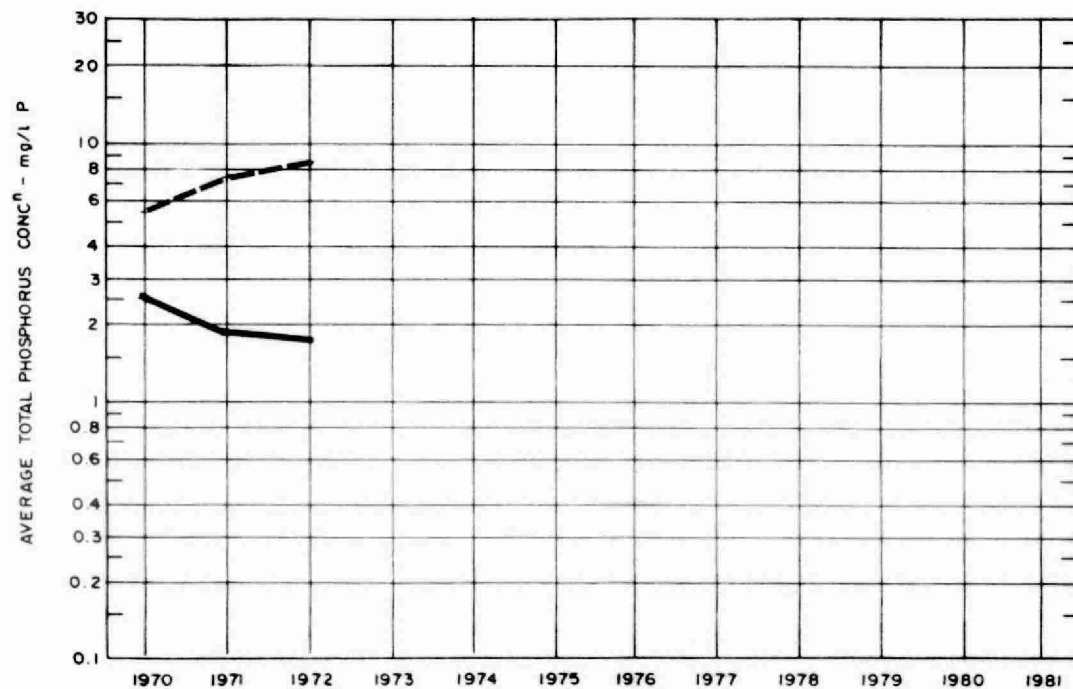
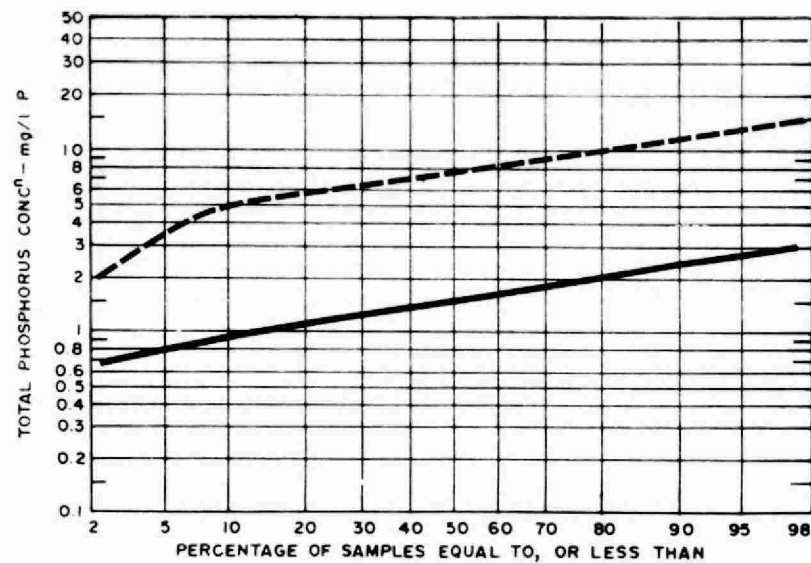
SUSPENDED SOLIDS



PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____



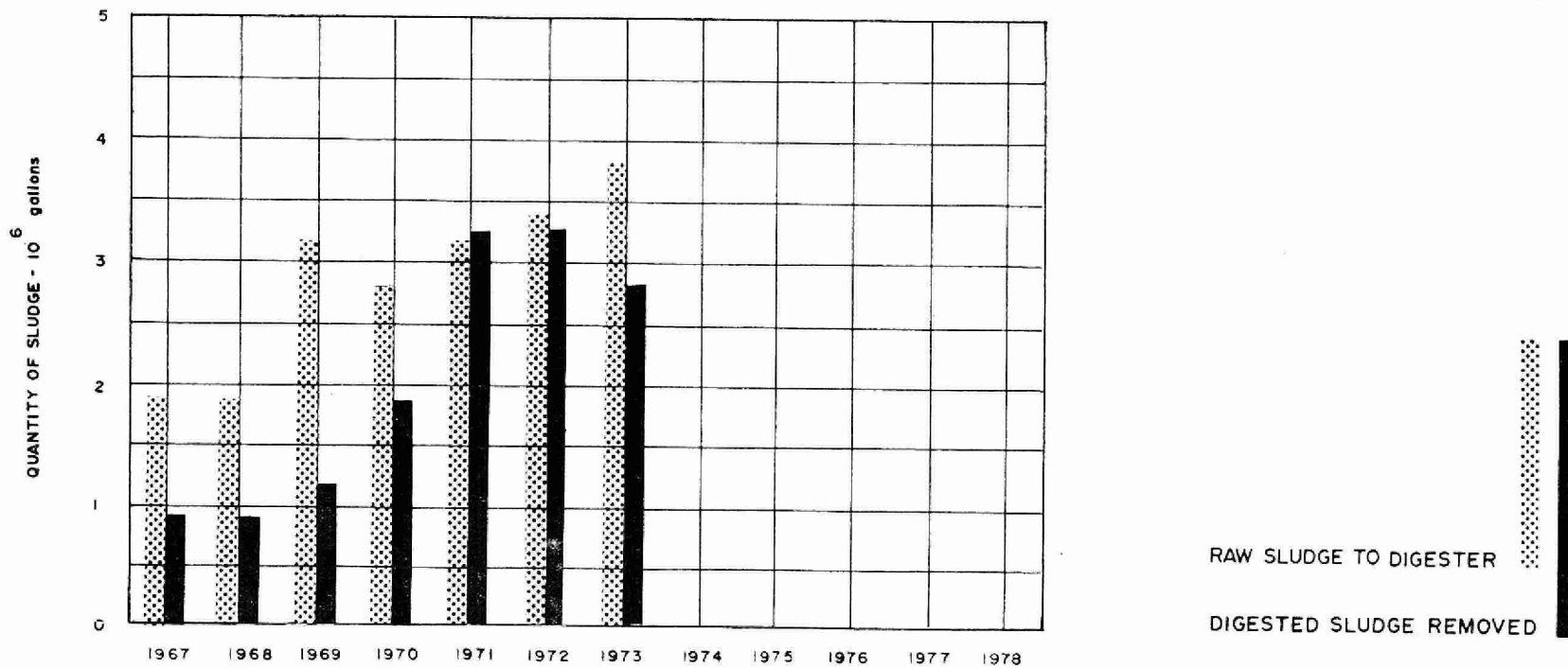
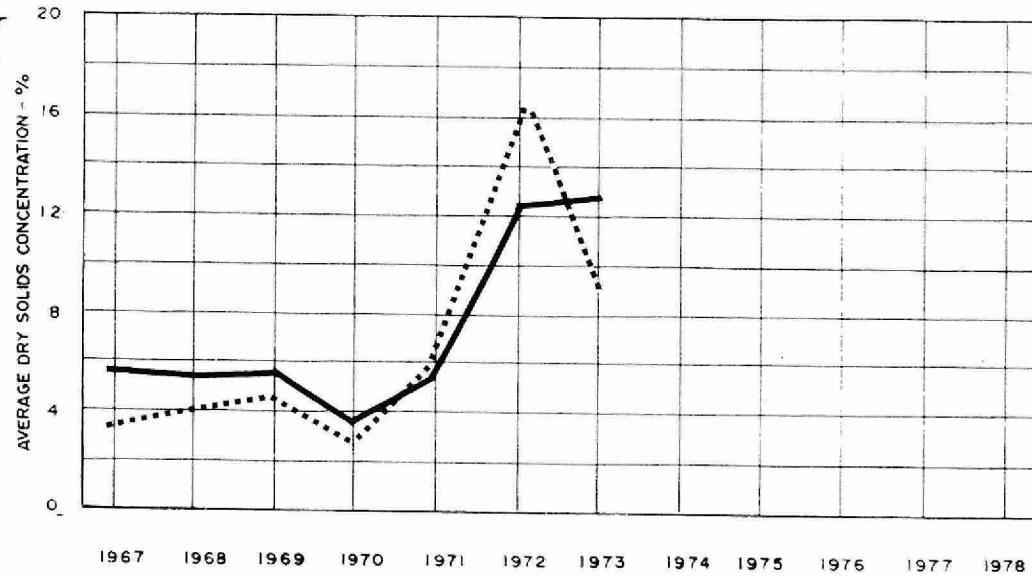
PHOSPHORUS



PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

DIGESTION

RAW SLUDGE
DIGESTED SLUDGE ———



RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED ———

TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED 10 ³ pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN	111			70	120	1600	0.21		2.9			3.9				2306
FEB	96			35	93	2300	0.10		3.0			2.4				1449
MAR	110			74	120	1900	0.16		3.2	8.0	40	2.3	11.1	27	1.4	1342
APR	105			57	110	1600	0.14		2.2	10.7	22	1.8	14.2		0.4	1069
MAY	99	2.9	5.7	80	97	1600	0.18		2.7	11.8		2.0	9.1	25	0.1	1160
JUNE	102	2.3	5.0	105	99	1600	0.23		2.8			1.6				977
JULY	89	3.2	8.2	76	130	1600	0.13		3.0	15.0		2.3				1360
AUG	121	2.6	5.4	77	120	2100	0.12		3.1			1.6				980
SEPT	127	2.6	5.9	64	90	1700	0.12		2.4			2.8				1662
OCT	108	2.5	4.8	70	91	1700	0.16		1.9	9.6		3.1	16.5		0.2	1829
NOV	112	0.6	3.1		130	1400			7.5			2.2				1292
DEC	105				110	1600			3.3	9.0		2.1				1207
TOTAL	1285	16.7	-	-	-	-	-	-	38.0	-	-	28.1	-	-	-	16633
AVG.	2.0 cu. ft/mil gal	3.0	5.5	71	110	1700	0.16		3.2	9.0	31	2.3	12.7	26	0.5	1386

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